Self-medication with Antibiotic in Children in Sana'a City, Yemen

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Abstract

Objectives: To study the prevalence of self- medication with antibiotic in children presented to the outpatient department at Sam hospital, Sana'a city Yemen.

Methods: This is a descriptive study conducted in the outpatient department of Sam hospital Sana'a city Yemen, during a five months period from Dec 2007 to Apr 2008. 2000 patients (1110 males and 890 females) were seen for different causes during that period. All patients were asked if they used antibiotics in the last 15 days without medical prescription, what type of antibiotic, why and how they obtained it. The age and sex of the patients were also recorded.

Results: The age group of the patients ranged from 0-15 years. Of the 2000 patients interviewed, 1200(60%) had taken an antibiotic in the last 15 days without a medical prescription. Respiratory (80%) and gastrointestinal (13%) symptoms were most frequently reported. 312(26%) patients used the previous prescription paper to obtain antibiotics, while 888(74%) obtained antibiotics from pharmacies and drug stores without any prescription required. Amoxicillin, Trimethoprim-sulfamethoxazole and amoxicillin-clavulanic acid accounted for (85%) of the prescribed antibiotics.

Conclusion: The prevalence of self-medication with antibiotics in children in Yemen is alarmingly high. A majority of the patients had respiratory and gastrointestinal symptoms and the common prescribed antibiotics were amoxicillin, Trimethoprim-sulfamethoxazole and amoxicillin-clavulanic acid. Most of the antibiotics were obtained from pharmacies and drug stores without the requirement of a prescription. Therefore, intervention from health authorities is needed to urgently stop this practice.

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Introduction

Self-medication is defined as the utilization of drugs to treat self-diagnosed disorders or symptoms, or the irregular or continuous use of a prescribed drug for chronic or repeated diseases or symptoms.[1] A major deficit of self-medication is the lack of clinical assessment of the condition by a qualified medical professional, which could result in overlooked diagnosis and hindrances in appropriate treatments.[2] The chemotherapy of bacterial infections depends on the isolation of the aberrant agent, categorization of the agent's antibiotic susceptibility, and bringing the suitable antibiotic to the site of infection in adequate quantities to either kill the bacteria (bactericidal) or modify it to permit the body's immune response to eventually kill it.[3]

The main problem with self-medication with antimicrobials is the emergence of pathogenic resistance. Antimicrobial resistance is an existing problem world-wide, mainly in developing countries, where antibiotics are often obtainable without prescriptions.[4] The increase in antibiotic resistance in developing countries is of current public concern as it results in multiple resistant organisms leading to infections not easy to treat.[5] The most common reasons for self-medication were colds and upper respiratory tract symptoms, which are self-limiting and mostly caused by viruses.[6,7] The determinants of self-medication with antibiotics in low-income countries mainly include over-the-counter sale of antibiotics, the cost of medical consultation, lack of agreement with medical practitioners, and misconception concerning the effectiveness of antibiotics.[8,9,10]

The prevalence of self-medication with antibiotics in Jordanand Sudan is considerably high.[11,12] Given the growing global resistance to antibiotics and the documented health problems related to their inappropriate use, the findings may have major public health policy implications. Self-medication with antibiotics also occurs in Europe, mainly in southern and Eastern European countries.[6,13] Some studies in the USA have also revealed considerable self-medication with antibiotics obtained from leftovers from previous courses, at a local pharmacy or outside the country.[7,14,15,16] This unsuitable use may contribute to antibiotic resistance which is reaching alarming levels in Southern and Eastern Europe.[17,18]

Other studies in the USA demonstrated that recent immigrants from Latin American countries, where antibiotics are available over-the-counter, had the greatest expectations for antibiotics for upper respiratory tract infections. Self medication performance varies significantly with a number of socio-economic characteristics, cultural beliefs and a lack of health insurance were other possible determinants of self-medication with antibiotics for the immigrants.[14,19] The aim of this study is to examine the prevalence of antibiotics use without medical prescription in children presented to Sam hospital, Sana'a city Yemen.

Methods

This is a descriptive study conducted in the outpatients department of Sam hospital Sana'a city Yemen during a five months period from Dec 2007 to Apr 2008. The hospital provides services to the community through outpatient clinics and admissions and receives patients from Sana'a city, surrounding areas and sometimes from other governorates, besides referred cases from private clinics. 2000 patients (1110 males and 890 females) were seen for different causes during that period. Parents or relatives of all the patients were interviewed regarding the patients' medication history during physical examinations. If antibiotics were used without a medical prescription in the previous 15 days, information about the type of antibiotics used, why, and how they were obtained were recorded. The age and sex were of the patients were also recorded. The data was analyzed using the Chi^2 test and statistical significance was determined at $p<0.005$.

Results

The age group of the patients ranged from 0-15 years. Of 2000, patients interviewed, 1200 [males 504(42%), females 696(58%)] had taken an antibiotic without a medical prescription in the previous 15 days. (Table 1)

There was a significant difference between the prevalence of self-medication with antibiotics and the sex of the patients ($p<0.0001$). All of these patients were above 3 months old, (Table 2). Respiratory (80%) and gastrointestinal (13%) symptoms were the most frequently reported.

The study found that 312(26%) patients used the previous prescription paper to obtain antibiotics, while 888(74%) patients obtained antibiotics from pharmacies and drug stores without any need for a prescription. Amoxicillin, Trimethoprim-sulfamethoxazole and amoxicillin-clavulanic acid accounted for (85%) of the prescribed antibiotics. (Table 3)

Table 1: Self-medication according to Sex

Sex	Self-medicated		Did not take self-medication		Total
	No	%	No	%	
Male	504	45.4%	606	54.6%	1110
Female	696	78.2%	194	21.8	890
Total	1200	60%	800	40%	2000

$Chi^2=221.4$ $p<0.0001$ OR=4.3

Table 2: Self-medication with Antibiotics in Children according to Age

Age group	Self-medicated		Did not take self-medication		Total
	No	%	No	%	
<3 months	0	0%	42	100%	42
> 3-12 months	90	21.3%	332	78.7%	422
>1-5 years	750	90%	83	10%	833
>5-15 years	380	54.1%	323	45.9%	703
Total	**1200**	**60%**	**800**	**40%**	**2000**

Table 3: Antibiotics which were used as Self Medication

Types of antibiotics	Number of patients	Percentage
Amoxicillin	360	30%
Amoxicillin-clavulanic acid	240	20%
Trimethoprim-sulfamethoxazole	420	35%
Other antibiotics	180	15%
Total	**1200**	**100%**

Discussion

In this study, the results showed that 60% of the patients used antibiotics without medical prescription. This is a very high percentage, however this finding is consistent with other studies of self-medication with antibiotics in adults in Jordan, Sudan, and Europe.[6,11,12,13,19] This percentage is high because most drugs, particularly antibiotics, can be obtained from pharmacies and drug stores without the need for a prescription in Yemen. Also, a majority of families are poor and cannot pay for doctor consultations, laboratory investigations or drugs, so they go directly to pharmacies and drug stores to minimize the cost.

Self-medication with antimicrobials has the potential to harm society at large, as well as the individual patient.[11] Minor ailments and viral infections such as common colds and upper respiratory tract infections are often treated with antimicrobials.[6,7] This is increasing bacterial resistance to antibiotics, raises side effect of inappropriate use of antibiotics in addition to the cost of the antibiotics.

In the present study, the results showed that female children were more exposed to self-medication than males. This can be explained by the fact that many families in Yemen prefer male children than females, so they seek medical advice for boys early without trial of antibiotics without prescriptions.

Also in this study, the majority of the patients had respiratory and gastrointestinal symptoms, and the most common prescribed

antibiotics were Amoxicillin, Trimethoprim-sulfamethoxazole and Amoxicillin-Clavulanic acid. This is in agreement with another study reported from Indonesia.[20] The most frequent causes for self-medication included colds and upper respiratory tract symptoms, which are self-limiting since they are predominantly caused by viruses.[6,7]

In the current study, 312(26%) patients used the previous prescription paper to obtain antibiotics, while 888(74%) obtained the antibiotics from pharmacies and drug stores without any prescription required. An explanation for this may be to reduce the cost and to pay only for drugs, either directly from pharmacies and drug stores or using the previous medical prescription paper. This probably may lead to many problems, in addition to the misuse of antibiotics, the cost may be augmented. It was observed that many parents or relatives of the patients used one or two doses of antibiotics, if the symptoms did not improve, then they consult a doctor and for that they pay more money for consultation, investigation and new drugs.

In this study, the parents or relatives did not use self-medication with antibiotics for children below 3 months without a medical consultation. This is a positive finding. It may be explained by by the fact that parents or relatives are afraid to give antibiotics to very young infants and also the pharmacists sometimes refuse to give antibiotics to very young children.

Conclusion

The prevalence of antibiotic use in children without medical prescription in Sana'a city is alarmingly high. Most drugs were obtained from pharmacies and drug stores without the need for a prescription. Therefore, intervention from health authorities is urgently needed to stop this practice.

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